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IDAHO PUBLIC
UTILITIES COMMISSION

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION OF AVISTA CORPORATION FOR A FINDING OF PRUDENCE FOR 2014-2015 EXPENDITURES ASSOCIATED WITH PROVIDING ELECTRIC AND NATURAL GAS ENERGY EFFICIENCY SERVICE IN THE STATE OF IDAHO	CASE NO. AVU-E-16-06 [redacted]
	DIRECT TESTIMONY OF LYNN ROY
	REPRESENTING Nexant, Inc

FOR AVISTA CORPORATION

(ELECTRIC AND NATURAL GAS)

I. INTRODUCTION

Q. Please state your full name, business address, and company name.

A. My name is Lynn Michelle Roy, and my business address is 867 Coal Creek Circle, Suite 120, Louisville CO 80027. My employer is Nexant, Inc.

Q. On whose behalf are you presenting testimony in this proceeding?

A. I am testifying on behalf of Avista Utilities.

Q. Have you previously submitted testimony in this proceeding?

A. No, I have not.

Q. Please describe your qualification.

A. I hold a Bachelors degree in Engineering Physics and a Masters degree in Mechanical Engineering. I have been working in the area of demand side management (DSM) program design, implementation, and evaluation since 2001. I have authored or co-authored several dozen reports on the evaluation of DSM programs for utilities, as well as state, and federal agencies across North America. I have presented at multiple energy efficiency industry conferences on industry standard evaluation methods and findings of interest. I am a member of the Association of Energy Service

Professionals (AESP) and the Associated Energy Engineers (AEE) Certified Energy Manager (CEM).

Q. Describe your current and previous job responsibilities.

A. I am currently a Principal Consultant in Nexant's Strategy and Planning group as part of the Utility Services Business Unit. I help oversee the work of 30 engineers, analysts and consultants in the Strategy and Planning Group including project oversight, subject matter expertise, staff mentorship, quality control, and management. From 2007 through 2011, prior to working in the Strategy and Planning group, I provided oversight to all project work directed out of the Colorado office.

Q. Describe your involvement in the delivery of Avista DSM programs.

A. Nexant, along with our subcontractor Research Into Action, was retained by Avista to serve as the third-party independent evaluator of its 2014 and 2015 Demand Side Management (DSM) programs in Idaho and Washington. As such, we conducted impact and process evaluations of the programs in the residential, nonresidential, and low income sectors.

The evaluation covered electric programs in Idaho and electric and natural gas programs in Washington.

Q. Were the evaluations prepared in accordance with industry standards?

A. Yes. All evaluations were conducted in a manner meeting industry standards and established protocols. These include: (1) the Department of Energy Uniform Methods Project, 2013, 2014 (2) International Performance Measurement and Verification Protocols: Concepts and Options for Determining Energy and Water Savings Volume 1, January 2012 (3) Model Energy Efficiency Program Impact Evaluation Guide: A Resource of the National Action Plan for Energy Efficiency, November 2007; and (4) Electric Power Research Institute: Guidebook for Energy Efficiency Program Evaluation, Measurement, and Verification, 2008.

Q. Have you conducted similar portfolio-level evaluations before?

A. Yes. Under my supervision, Nexant has recently completed similar program evaluations for the following electric and natural gas utilities and state and federal organizations other than Avista:

1. Georgia Power Company
2. Mississippi Power

3. NorthWestern Energy

4. Efficiency Maine

5. Lawrence Berkley National Lab

6. Colorado Governors Energy Office

7. Oklahoma Department of Commerce

8. Missouri Gas Energy

9. Elizabethtown Gas

10. Independent Electricity System Operator

Q. Have your evaluations elsewhere been reviewed by Public Utility Commissions or state-level evaluators?

A. Yes. In cases listed in the previous question where evaluations were conducted for a utility, the evaluations were either reviewed and approved or are in the process of being reviewed and approved by the representative utility commissions.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to present the findings of our evaluations for the 2014-2015 time period.

Q. Are you sponsoring any exhibits to be introduced in this proceeding?

A. Yes. I am sponsoring Exhibit No. 2, Schedules 1 and 2. Schedule 1 is the 2014-2015 Impact Evaluation and Schedule 2 is the 2014-2015 Process Evaluation.

Q. Describe Nexant's approach to conducting evaluations of DSM programs.

A. Nexant believes that successful evaluations rely on shared expectations that are clearly outlined in the research objectives developed during the planning phases of the evaluation. This shared understanding, which comes from a clear recognition of program theory and logic, goals, key performance indicators, and processes, is achieved through clear communication with stakeholders and utility DSM program staff. We also strongly believe in regular communication between the evaluation team and the program staff to allow for near real-time feedback on evaluation findings and recommendations. We also presented regularly to the stakeholders represented in Avista's Advisory Group to inform them of the project status.

Q. Were Avista's DSM programs cost-effective during the 2014-2015 timeframe?

A. Yes. Nexant conducted cost-effectiveness analyses for the 2014 program year and the 2015 program year separately for reporting in Avista's Annual DSM Reports. For Avista's

Idaho 2014 overall portfolio (including regular income and low income), the electric gross Total Resource Cost (TRC) test benefit cost ratio was 1.76 and the electric gross Program Administrator Cost (PAC) test benefit cost ratio was 3.22. For Avista's Idaho 2015 overall portfolio (including regular income and low income), the electric gross TRC test benefit cost ratio was 1.29 and the electric PAC test benefit cost ratio was 2.39.

Q. Describe Avista's energy efficiency internal Organization structure.

A. In the first six months of 2014, Avista's energy efficiency-related activities were organized into two teams that had different degrees of separation from the Company President. The Planning, Policy, and Analysis (PPA) Team was led by a Director of Energy Efficiency Policy who reported to the Senior Vice President Energy Resources. The program Implementation Team was led by a Director of Energy Solutions who reported to the Company President.

The PPA team's main role was to conduct the technical analyses in support of DSM policy and planning, including evaluation as well as conservation potential assessment, measure and program cost-effectiveness assessment, conservation business plan development, and DSM reporting. The Implementation Team comprised three groups led by three managers. The ten-person DSM

group consisted of program managers, program coordinators, and an executive assistant, and reported to the Manager of DSM. The seven-person Energy Solutions group consisted of account executives reporting to the Manager of Energy Solutions. The six-person EE Engineering group consisted of engineers of various degrees of seniority, reporting to the Chief EE Engineer. The three group managers reported to the Director of Energy Solutions, who reported to the President.

In July, 2014, Avista re-organized and the Energy Solutions group (with its staff of account executives) was separated from the Implementation Team umbrella into a new stand-alone group. The groups continue under the same manager and same director, but the director (Director of Energy Solutions) no longer has the DSM groups reporting to the position. The DSM groups are under a Senior Manager, Energy Efficiency. Both the Director of Energy Solutions and the Senior Manager, Energy Efficiency report to the Senior Director, Customer Solutions. The Senior Manager, Energy Efficiency directs three groups/functions (four including Oregon DSM activities). These are program management (still led by the Manager of DSM, supported by the same team of program managers and coordinators), EE engineering (still led by the Chief EE Engineer, supported the same engineering team), and DSM analysis (formerly the PPA team; now conducting cost-effectiveness analysis, EM&V planning, and related contract management). Under the new organization, the DSM analysis group included three of

the staff from the prior organizational structure - the DSM analytical manager, the EM&V engineer, and one of previously three utility resource analysts. The responsibilities of the DSM analytical manager were modified to eliminate program evaluation, with continued responsibility for the analytics associated with program planning and reporting.

Q. Please describe any data collection and activities associated with the evaluation.

A. Full impact evaluations were performed for the electric portfolio covering the low income, residential, and nonresidential sectors. The low income impact evaluation included billing analysis of electric and conversion measures using the full population of 2014 and 2015 participants. The nonresidential impact evaluation performed 172 site and/or metering visits, 268 document audits, individual site billing analyses, simulation modeling, and engineering calculations. Teams of engineers spent multiple weeks in the field at different points in 2015 and 2016. The residential impact evaluation was informed by billing analyses of the following residential programs: shell, fuel efficiency, HVAC, and low income. A participant and control group billing analysis was performed for the residential behavior program as well. Engineering savings analysis

included document audits, utility bill analysis and a review of savings calculation methodology and assumptions, utilizing the Regional Technical Forum (RTF) and Avista's 2014-2015 Technical Reference Manual (TRM). A total of 259 document audits and 222 telephone surveys were conducted for residential measure verification, and onsite inspections were conducted on 75 homes in support of a lighting hours of use study.

The process evaluation completed 339 residential participant, 70 residential non-participant, 339 nonresidential participant, and 70 nonresidential non-participant surveys. The evaluations also included 82 contractor interviews, 27 lighting retailer interviews, as well as interviews with several implementation contractors, and Avista program staff. The process evaluation covered key topics based on the source of the data. Staff and implementers topics covered program goals and processes, communication and coordination, data tracking, future program opportunities, and outreach. Contractor and utility customer topics covered program awareness, satisfaction, motivations to participate, sales practices, program experience, net to gross, and uptake of Simple Steps products. Database analysis covered participation patterns

and repeat participation. Details on each of these evaluation activities and results can be found in the associated Nexant reports: Impact Evaluation of Idaho 2014-2015 Energy Efficiency Programs and Process Evaluation of Avista's 2014-2015 Energy Efficiency Programs.

Q. Please summarize the Company's gross electric energy efficiency-related savings for this time period.

A. As shown below in Table 1, 31,081 MWh of gross energy savings were acquired through Avista's Idaho DSM projects between January 1, 2014, and December 31, 2015. The electric portfolio had a realization rate of 97%.

Table 1. Reported and Evaluated Electric Savings

Sector	Reported Savings (kWh)	Realization Rate (%)	Gross Verified Savings (kWh)
Residential	18,772,837	97%	18,281,513
Nonresidential	12,379,360	94%	11,687,224
Low Income	758,955	147%	1,112,301
PORTFOLIO	**31,911,152**	**97%**	**31,081,038**

Q. What are the gross electric energy savings by program?

A. The 2014-2015 program years' gross savings are summarized in Table 2 by program.

Table 2. Evaluated Electric Savings by Program

Sector	Program	2014-2015 Verified Gross Savings (kWh)
Low Income		1,112,301
Nonresidential	EnergySmart Grocer	2,138,035
	Food Service Equipment	70,971
	Green Motors	23,823
	Motor Controls HVAC	252,751
	Commercial Water Heaters	103
	Prescriptive Lighting	3,432,865
	Prescriptive Shell	29,474
	Fleet Heat	3,917
	Site Specific	5,735,284
Residential	Appliance Recycling	416,524
	HVAC	521,365
	Water Heat	354,675
	ENERGY STAR Homes	173,120
	Fuel Efficiency	3,198,893
	Lighting	10,457,288
	Shell	345,048
	Opower	2,814,601
Total		**31,081,038**

Q. Did Avista achieve its filed electric goals for 2014-2015?

A. Yes, the Idaho Integrated Resource Plan (IRP) goal was satisfied in 2014-2015 (Tables 4).

Table 4. IRP Goals and Evaluated Savings

2014-2015	kWh
Local Evaluated Savings	31,081,038
2014-2015 IRP Goal (2013 IRP)	30,996,200
Percent of Goal	100%

Q. What were the key findings of the residential process evaluation?

A. The following bullets outline the key findings:

- Simple Steps, Smart Savings, Opower Home Energy Reports, and Low-income are running smoothly. There were no reports of systemic problems with recruitment, communication, and implementation. Challenges encountered mainly revolved around customer databases. For example, smaller retailers in the Simple Steps, Smart Savings program struggle with reporting sales data because they lack a sophisticated reporting system that larger retailers typically have and Opower was unable to send Home Energy reports for about six months in 2015 when Avista changed its customer billing system in January/February 2015.
- Contractors were aware and familiar with Avista's programs. More than three-quarters of residential contractors reported completing projects that received Avista rebates for at least the past five years.
- Avista's marketing efforts are working in generating customer awareness. The source of program awareness

among customers is consistent with Avista's marketing activities.

- Contractors were the main source of awareness for participants. Awareness through a contractor was greater than any other source and was by far the greatest predictor of program participation.
- Awareness of other Avista programs among participants varied. Fewer than half of surveyed participants were familiar with other energy efficiency rebate opportunities from Avista (besides the program in which they had participated) and this varied by program.
- Participants were satisfied with the rebate programs. More than four-fifths (84%) of surveyed participants reported their overall satisfaction with their Avista rebate program experience as being either "very" or "completely" satisfied.
- Most (80-85%) contractors reported being satisfied with the length of time needed to complete the paperwork and range of qualifying products. The majority (67%) were satisfied with Avista website and about half (54%) reported being satisfied with the rebate amounts.

- Contractors provided the lowest satisfaction ratings on the marketing aspects of the rebate programs. However, in their follow-up comments, these contractors indicated they were largely unaware of Avista's marketing efforts or only saw the materials sporadically, indicating that contractors may be more unfamiliar with Avista's marketing of the rebate programs than they are dissatisfied.
- Nearly all rebate participants found program-related information clear.
- Top three motivations for participating in Avista's rebate programs were: increased comfort, saving energy, and saving money.
- Up-front cost was the most frequently cited barrier to completing an energy efficiency upgrade by nonparticipants. This indicates an importance of offering an incentive to customers for home improvement projects.
- The second most frequently cited barrier was living in a rental property. Nonparticipants reported that living in a rental property prohibits them from making improvements to their home.

Additional findings and details can be found in the associated Nexant reports: Impact Evaluation of Idaho 2014-2015 Energy Efficiency Programs and Process Evaluation of Avista's 2014-2015 Energy Efficiency Programs.

Q. What were the key findings of the nonresidential process evaluation?

A. The following bullets outline the key findings:

- Program participation declined over the last few years, especially in lighting. The change to a T8 baseline lowered incentives available for T12 upgrades, negatively effecting participation.
- The Energy Smart Grocer market may need to be expanded to boost participation. Staff reported that Energy Smart Grocer has seen diminished savings over the last few years due to the market getting saturated. Program staff is seeking new markets, such as restaurants and other food service establishments, to boost participation but that segment alone may not singularly compensate for the savings decline.
- Contractors play a notable role in the acquisition of projects, the implementation of projects, and in informing customers about rebates. Customer's awareness

of the program through contractors was associated with an increased likelihood of program participation, and contractors appear to be playing a larger role in preparing applications than in years past.

- Participants were largely satisfied with Avista's programs. The large majority of participants reported high levels of satisfaction with program elements such as the time it took to apply, the variety of equipment available, and the quality of the products received.
- Contractors and participants reported high satisfaction with their interactions with program staff.
- Contractors value Avista's rebates but there is an opportunity to use the programs to train contractors. Contractors reported they value Avista's rebates to help them sell jobs and push customers to install more efficient equipment.
- The Small Business program is running smoothly. The program is meeting its overall goals for measure installation and savings and there were no reports of any systemic problems with interval communication or administration.

- There is an opportunity to improve the efficiency of small businesses, particularly in the lighting area. Program data shows and installers reported ample opportunity in the market to replace T12s. More than a third of 2015 participants had T12 fixtures.

Additional findings and details can be found in the associated Nexant reports: Impact Evaluation of Idaho 2014-2015 Energy Efficiency Programs and Process Evaluation of Avista's 2014-2015 Energy Efficiency Programs.

Q. What recommendations resulted from the residential impact and process evaluations?

A. Select impact recommendations in the residential sector include:

1) For the HVAC program, a reexamination of assumptions related to annual per-home consumption and savings estimates in homes receiving Air Source Heat Pump measures and utilizing a detailed description of the replaced unit in required documentation for a better understanding of the baseline.

2) For the water heat program, update the current allocation of energy savings from 50% to electric and natural gas to an assumption based on the representative water heater fuel type saturation, using

either data specific to their territory or the Regional Building Stock Assessment study.

3) Include HERS scores in the ENERGY STAR homes program, and inclusion of gas meter installation or start service date for the fuel conversion program, will help facilitate energy savings calculations.

4) For the shell program, assumptions about per-home consumption should be revisited to increase alignment with savings found in billing analyses.

5) For the Simple Steps Lighting Program Avista should consider using Simple Steps higher resolution deemed values for internal reporting with the Simple Steps program and for use with internal residential lighting programs.

6) In the Fuel Conversion Program, re-evaluating the current savings cap for fuel conversion projects. In addition, align assumptions for fuel switching savings for the Low Income and Fuel Efficiency programs. The key residential process evaluation recommendation is to investigate energy saving opportunities in the residential rental market. Additional detail and recommendations can be found in the associated Nexant reports: Impact Evaluation of Idaho 2014-2015 Energy

Efficiency Programs and Process Evaluation of Avista's 2014-2015 Energy Efficiency Programs.

Q. What recommendations resulted from the nonresidential impact and process evaluations?

A. Select impact recommendations made by program include; 1) For the Site Specific program and Prescriptive Lighting programs, that Avista consider applying the interactive factors deemed by the RTF to quantify the interactive effects between lighting retrofits and their associated HVAC systems. 2) For the HVAC Motor Controls program, additional verification of motor eligibility status is recommended. More specifically, more emphasis should be placed on confirming motor application and duty status to ensure compliance with the program's existing eligibility requirements. 3) Avista should consider more internal review of energy savings estimates submitted by vendors for custom projects under the EnergySmart Grocer program. Alternatively, Avista could consider tracking custom EnergySmart Grocer projects under the Site Specific program with other projects of similar size and complexity. 4) For the Small Business program it is recommended that the modified deemed savings values utilized by the evaluation team be adopted by the program for future reporting purposes. Key process recommendations are that Avista should continue to

work with nonresidential lighting contractors to make sure they are fully aware of the advantages that more efficient lighting offers their customers, and for Avista to develop a marketing approach specifically targeting the replacement of T12 lamps. Additional detail and recommendations can be found in the associated Nexant reports: Impact Evaluation of Idaho 2014-2015 Energy Efficiency Programs and Process Evaluation of Avista's 2014-2015 Energy Efficiency Programs.

Q. What recommendations resulted from the low income impact evaluations?

A. Nexant recommends that Avista align assumptions for fuel-switching savings between the Low Income and Fuel Efficiency programs.

Q. Based on the process evaluation findings, were the programs delivered efficiently?

A. Yes, compared to similar undertakings by other utilities, they were.

Q. Can you please summarize your testimony?

A. Yes. I believe the evaluation of Avista's 2014-2015 energy efficiency programs addresses all impact and process evaluation needs in accordance with industry and regulatory standards. The impact evaluation on the 2014-2015 program years verified electric savings exceeding Avista's IRP

goals. The process evaluation revealed that the programs are run smoothly and efficiently and some areas for improvement exist.

Q. Does that complete your pre-filed direct testimony?

A. Yes, it does.